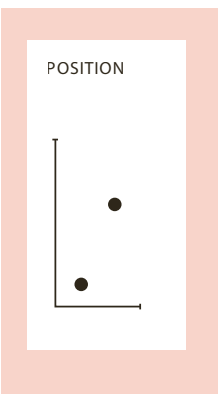# Numbers   (data on ratio or interval scale)

POSITION

LENGTH
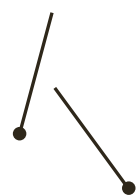
ANGLE

SLOPE

AREA

VOLUME

COLOR DENSITY

COLOR SATURATION

COLOR HUE

TEXTURE

SHAPE

CONNECTION

Adequate for encoding numbers

Poorly suited for encoding numbers

Not suitable for encoding numbers

USING POSITION FOR ENCODING NUMBERS

MOST PRECISE

LEAST PRECISE

Position along common explicit scale

Position along common implicit scale

Position along non-aligned, but linked scales

10
5
0

10
5
0

10
5
0

10
5
0

Position is in itself a very precise way of encoding information, but its usefulness in encoding numbers can be further enhanced by adding a scale. Data points can be compared even across several charts with relative ease when the charts have linked scales, meaning that similar distance in position corresponds to the same difference in value on both. (See Data visualization handbook, pp. 83–85.)

Scales are not helpful in encoding order or categories.

Order   (data on ordinal scale)

MOST PRECISE

POSITION

COLOR DENSITY

LESS PRECISE

COLOR SATURATION

COLOR HUE

TEXTURE

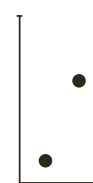CONNECTION

LENGTH

LEAST PRECISE

ANGLE

SLOPE

AREA

VOLUME

SHAPE

Well suited for encoding order

Adequate for encoding order

Poorly suited for encoding order

Not suitable for encoding order

Categories   (data on nominal scale)

MOST PRECISE

POSITION

SHAPE

COLOR HUE

LESS PRECISE

TEXTURE

CONNECTION

COLOR DENSITY

COLOR SATURATION

LEAST PRECISE
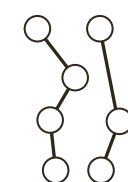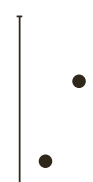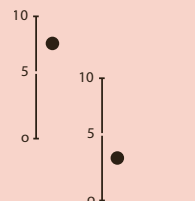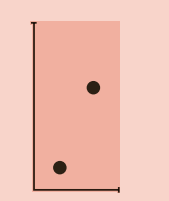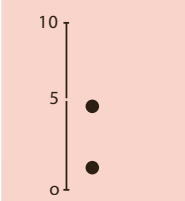
LENGTH

ANGLE

SLOPE

AREA

VOLUME

Well suited for encoding categories

Adequate for encoding categories

Poorly suited for encoding categories